

Claims

1. Sliding bearing element (1) comprising a backing (2), especially made of steel, said backing (2) is lined with a bearing material (3) and a soft material (4), wherein the bearing material (3) is capable of sustaining a bearing load and the soft material (4) is of anti-seizure quality

characterized in that

the bearing material (3) bonded to the backing (2) is disposed at least at the edges of the backing (2) in form of wires (5,6) in circumferential direction, and

the soft material (4) is located at least in a space between said wires (5,6).

2. Sliding bearing element (1) according to claim 1, **characterized in that** the soft material (4) covers the wires (5, 6) at the top in order to form a sliding surface by itself.
3. Sliding bearing element (1) according to claim 2, **characterized in that** the coating above said wires (5, 6) has a thickness $<30 \mu\text{m}$.
4. Sliding bearing element (1) according to claim 2 or 3, **characterized in that** the coating above said wires (5, 6) has a thickness $<5 \mu\text{m}$.
5. Sliding bearing element (1) according to claim 1, **characterized in that** the sliding surface is formed by the wires (5, 6) and the soft material (4).

6. Sliding bearing element (1) according to one of the claims 1 to 5, **characterized in that** at least one intermediate wire (6) bonded to the backing (2) between the two edge wires (5) generally running in the circumferential direction.
7. Sliding bearing element (1) according to claim 6, **characterized in that** the intermediate wire (6) which generally runs in the circumferential direction in addition oscillates in the axial direction of the sliding bearing element (1).
8. Sliding bearing element (1) according to claim 6 or 7, **characterized in that** the intermediate wire (6) oscillates regularly.
9. Sliding bearing element (1) according to claim 8, **characterized in that** the intermediate wire takes the form of a wave.
10. Sliding bearing element (1) according to one of the claims 1 to 9, **characterized in that** the edge wires (5) and/or the intermediate wire (6) have a circular cross-section.
11. Sliding bearing element (1) according to one of the claims 1 to 10, **characterized in that** the edge wires (5) and the intermediate wire (6) have the same diameter.
12. Sliding bearing element (1) according to one of the claims 1 to 11, **characterized in that** the edge wires (5) and the intermediate wire (6) have a diameter between 100 and 500 μm .

13. Sliding bearing element (1) according to one of the claims 1 to 12, **characterized in that** the edge wires (5) and the intermediate wire (6) have a diameter between 200 and 400 μm .
14. Sliding bearing element (1) according to one of the claims 1 to 12, **characterized in that** the edge wires (5) and the intermediate wire (6) have a diameter between 250 and 350 μm .
15. Sliding bearing element (1) according to one of the claims 1 to 15, **characterized in that** the bearing alloy (3) is a copper alloy, preferably copper-tin or copper-tin-phosphorus.
16. Sliding bearing element (1) according to claim 15, **characterized in that** the tin content of the copper alloy is less than 12% by weight and more than 4% by weight.
17. Sliding bearing element (1) according to claim 15 or 16, **characterized in that** the phosphorus content of the copper alloy is less than 1,0% by weight, preferably between 0,01% and 1,0% by weight.
18. Sliding bearing element (1) according to one of the claims 1 to 17, **characterized in that** the backing (2) is coated, preferably with copper or nickel.
19. Sliding bearing element (1) according to one of the claims 1 to 18, **characterized in that** the soft material (4) is a metal or a metal alloy.
20. Sliding bearing element (1) according to claim 19, **characterized in that** the soft material (4) is tin-based.

21. Sliding bearing element (1) according to claim 19, **characterized in that** the soft material (4) is bismuth-based.
22. Sliding bearing element (1) according to one of the claims 1 to 18, **characterized in that** the soft material (4) is a polymer based composition.
23. Sliding bearing element (1) according to claim 22, **characterized in that** the polymer based composition is based on polyphenylene sulphide, polyphenylene sulphone, polyetherether ketone, polyamide imide or polyaromatic polyester.
24. Sliding bearing element (1) according to claim 22 or 23, **characterized in that** the polymer based composition incorporates an organic solid lubricant.
25. Sliding bearing element (1) according to claim 22 or 23, **characterized in that** the polymer based composition incorporates an inorganic solid lubricant.
26. Method for producing a sliding bearing element (1), in particular for producing a sliding bearing element (1) according to one of the claims 1 to 25, which comprises the following processing steps:
 - providing a strip (2a) of steel or any other material having the required degree of strength which forms the backing (2) of the bearing (1) to be produced,
 - bonding at least one wire (5,6) at each of the two edges of the backing strip (2a) whereat disposing the wires (5, 6) in

such a manner that said wires (5) run in circumferential direction generally,

- filling out the spaces between the wires (5, 6) with soft material (4).

27. Method for producing a sliding bearing element (1) according to claim 26, **characterized in that** the wires (5, 6) being bonded by a sintering process .

28. Method for producing a sliding bearing element (1) according to claim 27, **characterized in that** the wires (5) being sintered by a sintering process comprising the following processing steps:

- continuously feeding the strip (2a) through an induction coil (11) in which the steel is heated in a non oxidizing atmosphere to a temperature at which sintering takes place and
- dispensing the wires (5, 6) onto the strip surface within the induction coil (11) such that the wires contact the strip surface as it reaches sintering temperature.

29. Method according to one of the claims 26 to 28 for producing a sliding bearing element (1) according to one of the claims 6 to 25, **characterized in that:**

- at least one intermediate wire (6) being dispensed from dispensers (10) reciprocating at right angles to the strip (2a).

30. Method according to one of the claims 26 to 29 for producing a sliding bearing element (1) according to one of the claims 1 to 21, **characterized in that:**
- the filling out of the spaces between the wires (5, 6) is carried out by casting or by rolling at elevated temperature.
31. Method according to one of the claims 26 to 29 for producing a sliding bearing element (1) according to one of the claims 22 to 25, **characterized in that:**
- the filling out of the spaces between the wires (5, 6) with the soft material (4) is carried out by producing the polymer based composition in tape form by extrusion and rolling the tape at a temperature corresponding to its softening point in the spaces.
32. Method according to one of the claims 26 to 29 for producing a sliding bearing element (1) according to one of the claims 22 to 25, **characterized in that:**
- the filling out of the spaces between the wires (5, 6) with the soft material (4) is carried out by producing the polymer composition in paste form by means of an organic solvent and rolling the paste into the spaces and subsequently heat treating to remove the solvent and consolidate the polymer composition.
33. Method according to one of the claims 26 to 29 for producing a sliding bearing element (1) according to one of the claims 22 to 25, **characterized in that:**

- the filling out of the spaces between the wires (5, 6) with the soft material (4) is carried out by producing the polymer composition as a powder or a blend of powders,
- spreading the powder or powder blend onto the strip (2a) in such a way as to fill the spaces between the wires (5, 6), and
- consolidating the powder or powder blend by heat treating or heating and rolling.